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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/706,292

11/13/2003

Sang Ho Lee

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34610

7590

12/15/2006

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EXAMINER

HOLTON, STEVEN E

ART UNIT

PAPER NUMBER

2629

DATE MAILED: 12/15/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b> 10/706,292	<b>Applicant(s)</b> LEE, SANG HO	
	<b>Examiner</b> Steven E. Holton	<b>Art Unit</b> 2629	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 02 October 2006.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1,2 and 4-27 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,2,4,6,7,10,11,13-15 and 22-27 is/are rejected.
- 7) ☒ Claim(s) 5,8,9,12 and 16-21 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |   |   |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                  | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

### DETAILED ACTION

1. This Office Action is made in response to applicant's amendment filed on 10/02/2006. Claims 1, 2, and 4-27 are currently pending in the application. An action follows below:

#### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

2. Claims 1, 2, 4, 13, 14, and 26 are rejected under 35 U.S.C. 102(a) as being anticipated by Toshiba Corp. (JP 2002341775).

Regarding claims 1 and 26, the Examiner notes that these claims are a device and associated method of operation. Toshiba Corp. discloses a power control system for a liquid crystal display with a light source (Fig. 1, element 22), a power supply unit (Fig. 1, element 36), a high-voltage generator to output to the light source based on the DC voltage (Fig. 1, element 42), and a feedback control unit for detecting a voltage induced from the high voltage output to determine the voltage level as an abnormal condition and inhibiting the output of the high-voltage generator during a time corresponding to the abnormal condition (Fig. 1, elements 54 and 32; paragraph 10). And the feedback control unit comprises a patterned conductor for conducting induced voltages to the control unit (Fig. 1, element 32; paragraph 32).

Art Unit: 2629

Regarding claim 2, Toshiba Corp. discloses the feedback determines a power surge in the high voltage output (the corona discharge leading to turning off the power supply; paragraph 4)

Regarding claim 4, Toshiba Corp. discloses the patterned conductor is a printed circuit board (paragraph 21). The Examiner notes that because a current is able to be induced within the patterned conductor it is magnetically proximate to the output of the generator and the input of the light source unit.

Regarding claims 13 and 14, Toshiba Corp. discloses the light source is a cold cathode tube (paragraph 19) and the Examiner notes that cold cathode fluorescent lamps are commonly used with liquid crystal displays.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 6, 7, 10, 11, 15, 24, 25, and 27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Toshiba Corp.

Regarding claims 6, 7, 24, and 27, the voltage level used to determine the presence of an abnormal state would be a matter of design choice for one skilled in the art. Depending on the application or the voltage levels of the power source it would be a matter of design choice for one skilled in the art to select a desired voltage level to be

Art Unit: 2629

considered an abnormal state. This could include a lack of voltage or voltage above or below a predetermined level.

Regarding claim 10, Toshiba Corp. discloses providing an integration circuit (Fig. 1, elements 56 and 58) and a rectifying diode (Fig. 1, element 62), but does not expressly disclose a coupling capacitor. It would be a matter of design choice for one skilled in the art to provide a coupling capacitor in series with the inductive sensor and other feedback circuits provided by Toshiba Corp. The coupling capacitor is used to block DC components of a voltage while allowing the AC voltages to be transmitted through the circuit. If a DC offset voltage was being sensed by the inductive sensor that was causing incorrect measurements, it would be obvious that a coupling capacitor could be used to remove the offset voltages from the measurement before determining if an error voltage was detected by the inductive sensor.

Regarding claim 11, Toshiba Corp. discloses using a series resistor and shunt capacitor as the integration circuit (Fig. 1, elements 56 and 58).

Regarding claim 15, the Examiner notes that this claim is similar to claim 1, except that it includes a DC/DC converter in between the power circuit and the high voltage out circuit. The Examiner states that it would be a matter of design choice for one skilled in the art to include a DC/DC converter in between a low DC power supply and a DC/AC high voltage converter based on the differences in power requirements and the circuit components to be used. The DC/DC converter would allow the DC voltages to be raised to levels for further boost by the high-voltage generator. The DC

Art Unit: 2629

levels and using a DC/DC converter to change the voltage levels would be a matter of design choice for one skilled in the art.

Regarding claim 25, Toshiba Corp. shows the connection of the patterned conductor to the feedback unit, but does not expressly disclose the other connection of the patterned conductor. At the time of invention it would have been obvious to one skilled in the art that the inductive input device would require an electrical loop so that current would flow through the inductive input. Such an electrical loop would commonly be made through a connection to ground. Thus, at the time of invention it would have been obvious to one skilled in the art that the connection of the patterned circuit would be through an electrical loop and a design choice to connect the loop through ground or some other chosen voltage level.

4. Claims 22 and 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Toshiba Corp. in view of Lee et al. (USPN: 5854617).

Regarding claim 22, as discussed above Toshiba Corp. discloses all of the limitations except, "a main controller for generating a power control signal for controlling an on/off function of the power supply unit and for generating a brightness control signal for controlling brightness of the light source unit."

Lee et al. discloses a luminescence controller (Fig. 2, elements 36 and 39) and a main controller (Fig. 2, element 20) for controlling the luminescence level and power control signal for the display device.

At the time of invention it would have been obvious to one skilled in the art to combine the teachings of Toshiba Corp. and Lee et al. Toshiba Corp. discloses a light power supply control unit to protect the backlight of a display device, but makes no comment as to external controlling processors. Lee et al. discusses an external controlling processor for a laptop display device that are used to control brightness level and power to the display. Combining the two references would be motivated to apply the power control system for a liquid crystal display described by Toshiba Corp. to a laptop computer system as described by Lee et al. The external microprocessor and luminescence control provided by Lee et al. would be needed for proper functioning of the display unit within the laptop computer.

Regarding claim 23, Lee et al. discloses a brightness controller for controlling the DC/DC converter according to the brightness control signals (Fig. 2, elements 36 and 39).

### ***Response to Arguments***

5. Applicant's arguments with respect to claim 1-21 have been considered but are moot in view of the new ground(s) of rejection based on newly disclosed prior art provided by the applicant.

***Allowable Subject Matter***

6. Claims 5, 8, 9, 12, and 16-21 objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter:

The present invention is directed to a control system of a power supply for a liquid crystal display device. Claims 5 and 16 identify the uniquely distinct features “receiving the induced voltage and for suspending the operation of the power supply unit during the time corresponding to the abnormal condition”. The closest prior art, Toshiba Corp., Furuhashi et al. (USPN: 6151232), and Beland (USPN: 6111732) disclose power control systems where the operation of the high power DC to AC converting unit is suspended rather than the operation of the power supply unit used to supply the high power converter, either singularly or in combination, fail to anticipate or render the above underlined limitations obvious.

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Steven E. Holton whose telephone number is (571) 272-7903. The examiner can normally be reached on M-F 8:30-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Amr Awad can be reached on (571) 272-7764. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.



Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Steven E. Holton  
Division 2629  
December 11, 2006

AMR A. AWAD  
SUPERVISORY PATENT EXAMINER  
